

# DETAILS

## Introduction

The construction and equipment for the modern buildings of today have become so complex that no one person can plan the entire building. The architect, engineer, and designers/drafters are dependent on each other for answers to questions as to strength, space, construction, mechanical apparatus, design, and appearance of the finished product. The architect is usually associated with architectural engineers (structural, mechanical, plumbing, and electrical) who work closely to coordinate the design with the various trades through joint meetings and open discussions. It is not uncommon to use freehand details to give the information needed for coordination. After being approved, these freehand details are often drawn with drafting instruments as details that are placed on the working drawings. Construction technicians and workmen use the details to see how the various systems were designed and to choose equipment that will satisfy the requirements of the building.

This chapter will discuss details that are commonly used in the building construction industry. In earlier chapters, the design responsibilities were broken down into architectural (designing the building) and engineering (mechanical, plumbing, electrical and structural) areas. Site work plans and structural plans are included under separate headings rather than grouping them under the architectural (major) heading.

Each of these areas has a need for details. Most of these details are drawn to scale; however, isometric and oblique drawings, which are not drawn to scale, are often used. This chapter will discuss information to be shown in a detail and will describe how details should be arranged on the working drawings.

## **WHAT DETAILS SHOULD BE DRAWN**

The architects and the engineers, along with their designers/drafters, must decide what information is needed and what procedures must be followed to install the equipment. Decisions must also include coordination with other construction areas to verify that no equipment will conflict with equipment from another trade and that work done by one trade will not interfere with that done by another trade. Decisions as to what details are required are usually made during the design process.

If the drawing is too small for the required information to be shown on the floor plan, a detail of the area in question is added, enlarging a small portion of the drawing and relaying the information to the builder.

## **SITE DETAILS**

The site plan section sometimes consists of demolition plans plus the new grading plan and the new work to be done on the site. Some details that are usually needed are as follows;

1. Storm drainage pipe installation detail
2. Catch basin details
3. Manhole details
4. Roadway paving details
5. Curb and gutter details
6. Details for planting plants and trees
7. Details of specialty items such as fountains, pools, and planters
8. Walls (brick, stone, wood, etc.)

Any or all of these details are required to complete the site work.

## **STRUCTURAL DETAILS**

Structural details are necessary to show how the structural members are joined in order to establish safe and acceptable joints. Some of the structural details are as follows:

1. Joining of major structural steel members
2. How smaller structural members join the major structural members
3. How structural members are connected to building members
4. How structural members join footings

Structural details should include notes and dimensions so that the installer knows how to make the installation.

## **ARCHITECTURAL DETAILS**

Some details that are commonly used in the architect's office are the following:

1. Window and window trim
2. Cornices and moldings
3. Fireplace and mantel trim
4. Doors and door trim
5. Bookcases and shelving
6. Built-in cabinets
7. Stairs and trim

The architectural detail should include such information as what types of materials are used, how different members are joined together, necessary dimensions for different members, and finishes for each member.

## **MECHANICAL DETAILS**

Some details that are commonly used in the mechanical engineer's office are as follows:

1. Mechanical unit details
2. Fan details
3. Equipment mounting bases
4. Unit hangers details
5. Roof-mounted equipment
6. Supply and return air terminals
7. Detail of special valves
8. Duct connections
9. Piping details
10. Pump details
11. Damper details
12. Insulation details
13. Coil mounting details
14. Louver details
15. Equipment connection details

Mechanical details should include such information as the type of materials used, how different members are joined together, necessary dimensions for different members, connection points, and hangers or mounting devices.

## **PLUMBING DETAILS**

Plumbing details, like mechanical details, are often repeated from job to job. The plumbing engineer and the plumbing technician must decide what details are needed to relay the necessary information. Some of the commonly used details in the plumbing section are as follows:

1. Interior and exterior clean-out details
2. Water heater piping detail
3. Roof drain details
4. Floor drain details
5. Piping diagrams (details)
6. Riser diagrams (details)
7. Yard hydrant details
8. Manhole details
9. Equipment connection details

Like the site, structural, architectural, and mechanical details, the plumbing details should contain all the information needed to install the detailed equipment properly. Dimensions may be required, and if so, they should be accurate and complete.

## ELECTRICAL DETAILS

The electrical section must have details. The engineer and design technician must decide what details are required. Some of the commonly used details are as follows:

1. Detail for mounting and connecting special equipment
2. Electrical panel details
3. Special wiring diagrams (details)
4. Power service diagrams (weatherheads, etc.)
5. Mounting pads for electrical equipment
6. Installation details for generators
7. Mounting details for parking lot lighting
8. Details of various lighting fixtures

The electrical plans are more diagrammatic than the other plans. For this reason, the electrical section may require more details to relay information.

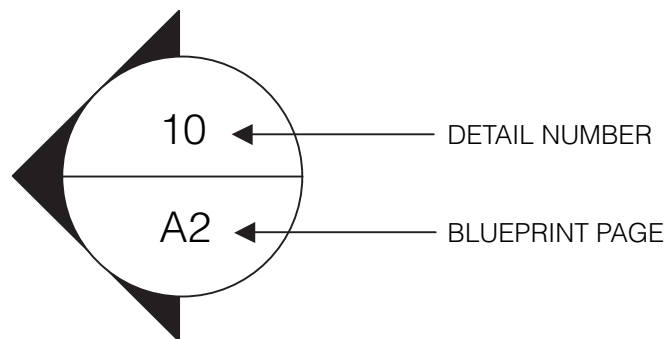
Like other details, the electrical details may require accurate and complete dimensions.

## LOCATING DETAILS ON THE SHEET

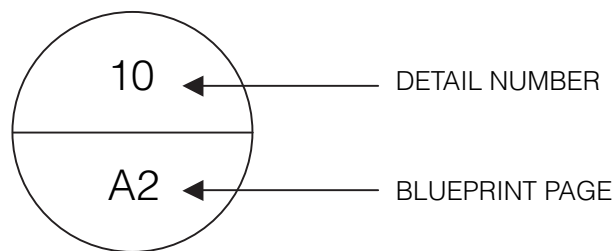
For smaller buildings, details are usually located on floor plan sheets or other sheets where there is space available. The details are usually identified within the titles. They should be indexed in some manner so that they can be found easily. On larger jobs, details are titled and numbered for identification and are shown on a separate sheet.

## DRAWING DETAILS

After a decision has been made as to the type of detail, the drafter proceeds with the drawing. Images are drawn with fine lines that are easily erased. When the drawing has been developed with light lines, a soft pencil with a fairly dull point (No. 2, for example) is used to draw over the construction lines, showing the object with crisp construction lines. Extension and dimension lines are often shown, giving the exact dimensions that are required.

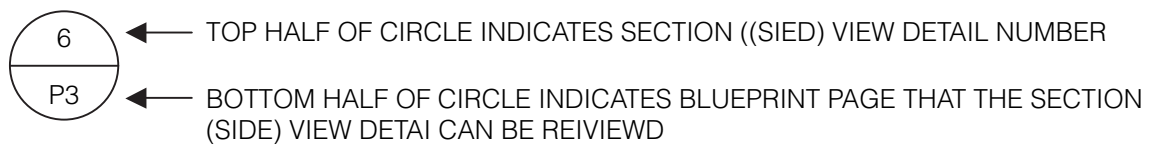


**DETAILS Figure 1.** Detail view symbol.



**DETAILS Figure 2.** Detail identification symbol.

DETAIL SYMBOL



DETAIL 6, DRAWING P3

**DETAILS Figure 3.** Typical detail reference symbol.